18. Write the highlights of

(a) Ozonolysis (3)

(b) Allylic and benzylic oxidation (3)

(c) Hydride reductions (4)

19. Explain the following reactions with plausible mechanism and example.

(a) Ulmann reaction (3)

(b) Hunsdieker reaction (3)

(c) Gomberg reaction (4)

20. (a) Discuss the aromatic character of non-benzenoid compounds with suitable examples.

(b) Explain the aromatic and non-aromatic character of [14]-annulene.

NOVEMBER/DECEMBER 2023

DCH21/GCH21 — ORGANIC CHEMISTRY-II

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the reaction of 1-butene with diborane.

2. Differentiate singlet and triplet carbenes.

3. Define Hoffmann and Saytzeff's rule.

4. Give an example for Hoffmann elimination reaction.

5. What is mean by allylic oxidation?

6. How is ethyl cinnamate reduced to cinnamyl alcohol?

7. What are long-live free radicals? Give an example.

8. Draw ESR spectra of methyl radical.

9. Write any two examples for anti-aromatic species.

10. Why is [10]-annulene not aromatic?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain Micheal addition and 1 ,3-dipolar addition reactions with example.

Or

(b) Write the plausible mechanism of

(i) Stobbe condensation, and

(ii) Wittig-Horner reaction.

12. (a) Compare the mechanism of E1 and E2 elimination reactions with suitable examples.

Or

(b) Write a note on pyrolytic elimination reactions.

13. (a) How is DMSO utilized as an oxidizing agent? Explain with suitable examples.

Or

(b) Explain the role of selectrides in the selective reduction of organic compounds.

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14. (a) Explain the following reactions with plausible mechanism and example

(i) Ulmann reaction,

(ii) Hunsdieker reaction

Or

(b) With the support of suitable examples detect the long- and short-lived free radicals.

15. (a) Write a note on aromaticity of benzenoid systems.

Or

(b) What is mean by homoaromaticity? Explain your answer with suitable example.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. (a) Explore the synthetic utility of Micheal addition. (4)

(b) Describe the methods of generating carbenes. Explore addition and insertion reactions of carbene with alkene. (6)

17. Discuss various factors affecting elimination reactions versus substitution reaction.